

REMARKS/ARGUMENTS

Status of the Application

In the Non-Final Office Action, claims 2-5 and 7 were rejected under 35 U.S.C. § 103 and for nonstatutory obviousness-type double patenting. In the present response, Claims 2 and 7 have been amended and Claims 3-5 have been canceled. Support for the amendments can be found in the application specification, 5:2-4, 5:11-13, 5:16-18 and 11:22-24, and in the currently canceled Claims 3 and 5. In addition, appropriate Terminal Disclaimers have been filed. No new matter has been added.

Rejections Under 35 U.S.C. § 103(a)

Claims 2-5 and 7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kaoru (JP-4-130190) in view of Donnelly (3,014,832). Claims 3-5 have been canceled. Claims 2 and 7 have been amended so as to obviate the rejections and applicants respectfully traverse the rejections.

As a preliminary matter, both Kaoru and Donnelly are directed toward methods of cleaning and lubricating the hard, inflexible surface of a dryer drum to prevent adherence of contaminants to that surface and to ensure proper paper release from the surface of the dryer (Kaoru translation p. 1 and Claim 1; Donnelly col. 2 lines 60-61). In contrast, the current application is directed to preventing contaminants from adhering to the canvas that is used to press the paper against the dryer drum (4:13-16). This canvas is necessarily made of flexible, fibrous, and porous material so as to allow moisture from the drying paper strip to permeate through it (1:31-33, 2:30-3:4), which is clearly quite different than the dryer drum itself, which is necessarily made from a hard and inflexible material (Figure 2). Thus, these two inventions were designed to solve quite different problems, though both problems do occur in a papermaking machine. These inventions are therefore non-overlapping and the use of one neither precludes nor obviates the use of the other. In fact, to ensure maximum system efficiency, both are likely necessary. Thus, there is a basic lack of obviousness here due to the vastly different problems which the current invention and the referenced inventions address. In addition, Kaoru and Donnelly neither teach nor suggest the use of their methods to impart anti-

contaminant properties upon the canvas, as is claimed in the current invention, further demonstrating the lack of obviousness of the current invention.

Claims 2-5

Claim 2 of the current application involves spraying a silicone oil onto a roller which then results in transfer of that oil to the canvas of the papermaking machine, thereby imparting upon that canvas anti-contaminant properties. This claim has been further narrowed by the current amendment to specifically include the addition of a surfactant to the oil and the dilution of the oil with pre-heated water immediately prior to spraying.

The Examiner cited Kaoru in light of Donnelly as making the act of spraying oil on the canvas in Claim 2 obvious under 35 U.S.C. § 103(a). Kaoru discloses a method of cleaning the surface of a rotating dryer drum in a papermaking machine through the direct spray application of a release agent to the drum surface, wherein that release agent then transfers to the fibers of the paper strip as it contacts the drum (Kaoru translation p. 2 and p. 3 Example 1). Using the rate of drum rotation disclosed in Donnelly, the current application was said to be an obvious adaptation of the Kaoru invention, as the claimed rate of rotation in the current application includes the spray rate disclosed in Kaoru/Donnelly. However, regardless of whether the spray rate of the current application and that derived from the Kaoru/Donnelly combination are overlapping, the current invention and those disclosed in the references are sufficiently dissimilar to make the current application nonobvious.

The Kaoru method involves spraying the dryer drum with a certain solution to ensure that the dryer drum is maintained in a clean fashion and that the paper releases from that drum properly (Kaoru translation p. 2), while the current application involves spraying a roller that guides the canvas so that the canvas becomes treated with an anti-contaminant, thereby increasing the time between canvas cleanings and the usable life of the canvas (4:11-16; 2:17-21). This relatively large difference in the intended use of the inventions concomitantly results in immense dissimilarities in the manner in which the inventions are practiced and in the challenges that arise in developing each invention. One example of a challenge presented by the current invention that is not presented by the Kaoru/Donnelly

inventions is that the silicone oil coating applied to the canvas in the current application must be applied in a very controlled manner so as to ensure a sufficient amount of coating is applied but not so much as to overload the canvas and clog the canvas eyes. If the canvas is supplied with an insufficient amount of coating, then the method will be ineffective (12:20-27). However, if the canvas is sprayed with an excessive amount of coating, the coating will clog the eyes of the canvas, thereby reducing the ability of the canvas to pass moisture evaporating from the paper through it, resulting in decreased drying efficiency and a coincident increase in energy consumption (4:17-21; 4:3-5). Because the dryer drum is not a flexible, fibrous, and porous surface that absorbs and retains liquids, no such issue exists in practicing the Kaoru and Donnelly inventions. Because of challenges such as this, challenges that do not exist for the Kaoru and Donnelly inventions, it would clearly not be obvious to use the Kaoru and Donnelly inventions, even in combination, to supply an anti-contaminant coating to the canvas. In addition, as stated above, the Kaoru and Donnelly references do not teach or even suggest the use of those inventions to impart anti-contaminant properties to the canvas. Thus, the limitations of previous Claim 2 (prior to the current amendment) are in no way an obvious adaptation of the Kaoru invention, even in light of Donnelly, so the Applicants respectfully request that the rejection of the limitations of previous Claim 2 be withdrawn and the claim be allowed. However, even if the Examiner believes the limitations of rejected Claim 2 to be obvious to one skilled in the art, Claim 2 has been currently amended to include additional limitations that are themselves nonobvious, thereby making current Claim 2 allowable.

Claim 3 involves addition of a surfactant to the silicone oil. While this claim has been canceled in the current response, its limitations have been included in the current amendment to Claim 2 and therefore its rejection will be addressed. The Examiner cites Kaoru as disclosing a surfactant added to the silicone oil, which allegedly makes the current invention obvious under 35 U.S.C. § 103(a). However, as discussed above, the vastly different problems addressed by Kaoru and the current application show a basic lack of obviousness - as stated in the discussion of Claim 2, differences between the problems these inventions address would suggest against the use of Kaoru to treat the canvas. In addition, the Kaoru invention in no

way teaches or suggests the use of that invention to impart anti-contaminant properties upon the canvas, or any other flexible substrate for that matter. Thus, Applicants contend that the limitations of Claim 3 are not an obvious adaptation of the Kaoru invention, so Applicants respectfully request that the rejection to this claimed limitation be withdrawn and amended Claim 2, which includes this limitation, be allowed.

Claim 4 has been canceled and its limitations have not been included in Claim 2, so its obviousness is no longer at issue.

Claim 5 involves dilution of the oil with preheated water immediately prior to spraying. While this claim has been canceled in the current response, its limitations have been included in the current amendment to Claim 2 and therefore its rejection will be addressed. The Examiner cites Donnelly as disclosing the addition of water as a dilutant to the oil prior to spraying and states that it "would have been obvious, to one skilled in the art at the time the invention was made, to dilute the oil with heated water, since the cylinder drum of Donnelly operates at elevated temperatures" (Office action dated 03-13-06, p. 3). However, Applicants argue that this was not an obvious adaptation of Donnelly. As an initial matter, despite disclosing the fact that the cylinder drum operates at an elevated temperature and disclosing the use of water as a dilutant, Donnelly fails to teach or even suggest heating the water prior to dilution of the oil, thereby showing a basic lack of obviousness. In addition, heating the water prior to dilution gives certain unexpected results that further show nonobviousness of this limitation. The act of heating the water reduces clogging of the spray nozzle during spraying, thereby allowing the sprayers to operate more effectively and efficiently and with a reduced maintenance requirement (11:22-24; 17:7-14). Also, as noted above, the current application and the Donnelly invention are intended to solve quite different issues faced by the papermaking industry such that use of the Donnelly invention to impart anti-contaminant properties upon the canvas is in no way obvious. For all of these reasons, Applicants contend that the limitations of Claim 5 are not an obvious adaptation of the Donnelly invention, so Applicants respectfully request that the rejection to this claimed limitation be withdrawn and the limitation be allowed as a part of current Claim 2.

In summary, Applicants believe that even if Kaoru and Donnelly are combined, they do not render the previous limitations of Claim 2 obvious due to the widely varied problems that the current and referenced inventions address and the fact that the cited references neither teach nor suggest the use of those inventions in the treatment of the canvas of the papermaking machine. However, even if the Examiner finds the previous limitations of Claim 2 to be obvious in view of Kaoru and Donnelly, currently amended Claim 2, with the additional limitations included, is clearly nonobvious. The limitation of previous Claim 3 that was added to Claim 2 is not obvious in view of Kaoru because that reference fails to teach or even suggest the use of a surfactant in the treatment of the fibrous, porous, and flexible canvas of the current application. In addition, the limitation of previous Claim 5, teaching the use of heated water as a dilutant, which now has been added to Claim 2, is not obvious in view of Donnelly as that limitation is neither taught nor suggested by the referenced application and as that limitation brings about certain unexpected results. Therefore, Applicants respectfully request that the 35 U.S.C. § 103(a) rejection as to Claim 2 be withdrawn and the claim allowed.

Claim 7

Claim 7 involves a method of preventing contamination of a canvas in a papermaking machine by spraying a silicone oil solution onto an out-roll of the papermaking machine and having that spray then transfer to the canvas where it imparts anti-contaminant properties. This claim has been further narrowed by the current amendments to include 1) the emulsification of the silicone oil with a surfactant and 2) the dilution of the oil just prior to spraying with pre-heated water, as well as 3) by stating a specific spray-rate range. In addition to Applicants' belief that the previous limitations of Claim 7 were not obvious in view of the referenced prior art, by amending the claim to add these limitations any possibility of obviousness in view of that reference has been completely eliminated.

As a preliminary matter, Applicants contend, as was stated for Claim 2 above, that the vastly different problems that the Donnelly patent and the current application address would make any use of a Donnelly-type invention in the treatment of the canvas nonobvious. As discussed above, the Donnelly patent teaches a method of

lubricating and cleaning the hard, non-flexible dryer drum of a papermaking machine, while the current application teaches a method of imparting anti-contaminant properties upon the fibrous, porous, and flexible canvas of the papermaking machine – a difference which results in great dissimilarities in the manner in which the inventions are practiced and in the challenges that arise in developing each invention, thereby creating a situation where it would be nonobvious to use the Donnelly drum dryer invention or some variation of it to treat the canvas.

In addition, the current amendments to Claim 7 add further nonobviousness to the invention in view of Donnelly. The allowability of these limitations is discussed above in detail, but will be summarized in relation to Claim 7 here. While Donnelly does disclose a method of spraying, it fails to disclose the addition of a surfactant to the oil, as is claimed in the currently amended Claim 7. The addition of surfactant is in no way taught or suggested by Donnelly, showing its nonobviousness. Also, the addition of the surfactant has an unexpected result: the surfactant aids in spraying by lowering the viscosity of the oil, thereby improving spray dispersion (11:9-12). This further shows the nonobviousness of this added limitation. Current Claim 7 also teaches dilution of the oil with preheated water just prior to spraying. Again this is in no way taught or suggested by Donnelly, showing its nonobviousness. Heating the dilutant water also brings about unexpected results in that it aids in maintaining nozzle effectiveness by keeping the spray nozzles free from clogs (11:22-24; 17:7-14). Thus, this limitation added to Claim 7 also is nonobvious. In light of all this, Applicants contend that Claim 7 as amended is in no way obvious in view of Donnelly and therefore respectfully request that the rejection as to this claim be withdrawn and the claim allowed.

Nonstatutory obviousness type double patenting rejections

'113 Patent

Claims 2-5 and 7 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 of U.S. Patent No. 6,858,113 (hereinafter '113 patent). Applicants contend that the cited reference does not make the current invention obvious under 35 U.S.C. § 103(a) and therefore respectfully request that these rejections be withdrawn.

The '113 patent is directed to a method of preventing contamination of the surface of a dryer drum in a papermaking machine and specifically claims the use "of a surface forming agent which contains synthetic resin powders as the main constituent thereof" ('113 patent, col. 11-12, Claim 1). In contrast, the current application is directed to a method of imparting anti-contaminant properties upon the canvas of the papermaking machine through the use of a silicone oil spray treatment (4:13-16; 1:31-33, 2:30-3:4). Thus, the current invention differs from the '113 patent in several fundamental respects.

First, the '113 patent is intended to treat the inflexible metal dryer drum surface ('113 patent: col. 4 lines 30-32; cols. 11-12 Claims 1-7; col. 1 lines 29-30) while the current invention is intended to treat the flexible, fibrous, and porous canvas surface (1:31-33, 2:30-3:4). As stated above, this difference results in great dissimilarities in the manner in which these two inventions are practiced and the challenges that arise in making these two inventions operable. For example, the current invention must be operated in a manner such that a sufficient volume of spray is applied to the canvas to impart anti-contaminant properties (12:20-27) but not an excessive amount so as to clog the eyes of the canvas, thereby reducing the ability of the canvas to pass moisture through it (4:17-21; 4:3-5). However, because the dryer drum treated in the '113 patent is not a flexible, fibrous, and porous surface that absorbs and retains liquids, no such issue exists in practicing the '113 patent. Because of challenges such as this, which do not exist for the '113 patent, it would clearly not be obvious to use the invention disclosed in the '113 patent to supply an anti-contaminant coating to the canvas.

Second, the '113 patent discloses and claims the use of a surface forming agent to fill up the "recesses in microscopic asperities on the surface" of the dryer drum with synthetic resin powder and further by forming a synthetic resin film layer on the dryer drum surface ('113 patent, col. 4 lines 30-40). In contrast, the current application uses no such surface forming agent to fill in the spaces of the canvas and make it smooth. Instead, the current invention uses a silicone oil treatment to permeate the fibers of the canvas to impart upon it anti-contaminant properties (4:13-16, 1:31-11, 2:30-34). This in no way fills in the gaps in the canvas surface or gives the canvas surface a more smooth finish. In fact, the invention specifically discloses

that the gaps in the canvas, called the “eyes”, cannot be filled in or the invention becomes inoperable (4:17-21, 4:3-5). This difference in the intended result of the inventions further shows the lack of obviousness of the current invention in view of the ‘113 reference.

Lastly, the ‘113 patent discloses and claims the use of a surface forming agent that has as its main constituent a synthetic resin powder (‘113 patent: col. 11-12 Claim 1; col. 12 Claim 7). The current invention discloses no such resin powder, but rather specifically claims the use of a silicone oil emulsified with a surfactant and diluted with preheated water as a spray treatment (see Claims 1 & 7). This is a fundamental difference as the predominantly silicone oil spray from the current invention would almost certainly not be effective in the intended operation of the ‘113 patent, and the ‘113 patent’s predominantly synthetic resin powder spray would almost certainly not be effective in the intended operation of the current invention. This again makes the current invention nonobvious in view of the ‘113 patent.

In addition to the above reasons, the ‘113 patent does not teach or even suggest its use to impart anti-contaminant properties upon the canvas, further showing the nonobviousness of the current invention in view of that reference.

For all of these reasons, Applicants contend that the current invention is not obvious under 35 U.S.C. § 103(a) in view of the ‘113 patent and therefore respectfully request that the obviousness-type double patenting rejection as to Patent No. 6,858,113 be withdrawn and the claims allowed.

‘020 Application

Claims 2-5 and 7 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6 of copending Application No. 09/806,020 (hereinafter ‘020 application/invention). Applicants contend that the cited reference does not make the current invention obvious under 35 U.S.C. § 103(a) and therefore respectfully request that these rejections be withdrawn.

The ‘020 invention is directed to a method of preventing contamination of the surface of a dryer drum in a papermaking machine by spraying onto the dryer drum a surface treatment agent prepared by emulsifying oil with a surfactant (‘020

application: Claim 1). In contrast, the current application is directed to a method of imparting anti-contaminant properties upon the canvas of the papermaking machine through the use of a silicone oil spray treatment (4, 13-16; 1:31-33, 2:30-3:4). The current invention differs from the '020 application in several fundamental respects.

First, the '020 invention is intended to treat the inflexible metal dryer drum surface ('020 application: p. 1 lines 24-26), while the current invention is intended to treat the flexible, fibrous, and porous canvas surface (1:31-33, 2:30-3:4). As stated above, this difference results in great dissimilarities in the manner in which these two inventions are practiced and the challenges that arise in making these two inventions operable. For example, the current invention must be operated in a manner such that a sufficient volume of spray is applied to the canvas to impart anti-contaminant properties (12:20-27) but not an excessive amount so as to clog the eyes of the canvas, thereby reducing the ability of the canvas to pass moisture through it (4:17-21; 4:3-5). However, because the dryer drum treated in the '020 invention is not a flexible, fibrous, and porous surface that absorbs and retains liquids, no such issue exists in practicing the '020 invention. Because of challenges such as this, which do not exist for the '020 invention, it would clearly not be obvious to use the invention disclosed in the '020 application to supply an anti-contaminant coating to the canvas.

Second, the '020 application discloses and claims the spraying of a "surface forming agent" onto the drum, with such surface forming agent acting by filling up the "recesses in microscopic asperities on the surface" of the dryer drum with oil ('020 application: Claim 1; p. 5 lines 15-20). In contrast, the current application uses no such surface forming agent to fill in the spaces of the canvas and make it smooth, instead using a spray treatment to permeate the fibers of the canvas to impart upon it anti-contaminant properties (4:13-16, 1:31-11, 2:30-34). This treatment does not fill in the gaps in the canvas surface and give it a more smooth finish. In fact, the invention specifically discloses that the gaps in the canvas, called the "eyes", cannot be filled in or the invention becomes inoperable (4:17-21, 4:3-5). This difference in the intended result of the inventions further shows the lack of obviousness of the current invention in view of the '020 application.

In addition to the above reasons, the '020 application does not teach or even suggest its use to impart anti-contaminant properties to the canvas, further showing the nonobviousness of the current invention in view of that reference.

For all of these reasons, Applicants contend that the current invention is not obvious under 35 U.S.C. § 103(a) in view of the '020 application and therefore respectfully request that the obviousness-type double patenting rejection as to copending Application No. 09/806,020 be withdrawn and the claims allowed.

Summary

In view of the foregoing amendments and remarks, Applicants submit that this application is in condition for allowance and therefore respectfully request that a Notice of Allowance be issued. In order to expedite disposition of this case, the Examiner is invited to contact Applicants' representative at the telephone number below to resolve any remaining issues. Should there be a fee due which is not accounted for, please charge such fee to Deposit Account No. 501447 (Potter Anderson & Corroon LLP).

Respectfully submitted,



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